The result of this systematic and laborious task of gathering all these records and observations reflects great credit on the editor, who seems to have spared no pains to insure the accuracy of the information recorded.

Photogravure. By W. T. Wilkinson. (London: Iliffe and Son, 1890.)

THE aim of photographers has long been to produce prints, permanent and artistic in effect, with the delicacy and truthfulness of a photograph from nature. The process of photogravure seems to fulfil these requirements, and for purposes of book illustration should form a most important factor from the commercial point of view. The process is both simple and interesting, and requires little apparatus or material which is not already found even in most amateur's photographic dark rooms.

Mr. Wilkinson describes in this little book a method employed in obtaining a finished plate, the process being divided into six stages. The first is the production of a transparency upon a special (transparency) carbon tissue from the negative; in the second, from the transparency a negative in ordinary carbon tissue is made; the third consists in laying the etching ground upon a polished copper plate; in the fourth the carbon image (second stage) is mounted and developed upon the prepared copper plate; the fifth stage deals with the protection of the margin, and etching and burnishing; and the sixth and last stage gives us the print from the plate, done in much the same manner as copper-plate etchings and mezzotint engravings. The frontispiece, by W. L. Colls, affords a good illustration of a result of this process.

Elements of Euclid. Book I. By Horace Deighton, M.A. New Edition, Revised. (London: George Bell and Sons, 1890.)

THE present edition of Mr. Deighton's book is a great improvement on many of the works on this subject. In addition to the ordinary propositions, the solutions of a large number of important propositions are incorporated in the text with riders attached to them, which will be found useful, since in examinations nowadays more is required than is contained in Euclid.

Abbreviations and other symbols are used throughout, with the exception of the first fifteen propositions, and great clearness is obtained in the propositions and problems by making the construction lines thin, and also by printing the letters referring to the figures in a larger and more conspicuous type.

At the end of Book I. a series of examples is given on the propositions in it, and a short chapter on plane loci is added. This book will be especially instructive to beginners, the author having smoothed the path for those who wish to acquire facility in solving geometrical questions.

Camping Voyages on German Rivers. By Arthur A. Macdonell. (London: Edward Stanford, 1890.)

IN this book Mr. Macdonell gives an account of boating expeditions on German rivers. Some of the streams he describes have already been dealt with in English books, but he may fairly claim that no previous work of the kind is so nearly complete as his own. Every German river—with the exception of the Lahn—which an Englishman would care to see, he has navigated; and his experiences with regard to each are carefully recorded. We need scarcely say that for young and vigorous travellers there is no more delightful way of visiting a beautiful country. It not only provides them with healthy physical exercise, but takes them into the midst of enchanting scenery, and gives them opportunities of becoming intimately acquainted with interesting towns and villages. Mr. Macdonell has thoroughly appreciated the happiness which has thus come in his way; and in this book he contrives to communicate to his readers a good deal of the pleasure with which he recalls his adventures, and depicts what he has seen. The work is based on notes taken down each day in the course of the various voyages, and to some extent this no doubt accounts for the brightness and freshness of the narative. The value of the book is much increased by good maps, of which no fewer than twenty are given.

Epping Forest. By E. N. Buxton. Third Edition. (London: Edward Stanford, 1890.)

WE are glad to welcome a new edition of this excellent little Guide. Mr. Buxton says the idea of writing it occurred to him when he observed how small a percentage of the summer visitors to Epping Forest ever ventured far from the point at which they were set down by train or vehicle. No one to whom this Guide is known will be content to go to Epping Forest without trying to see as much of it as can be conveniently visited. Mr. Buxton has lived all his life in one or other of the Forest parishes, and knows exactly what parts of the subject are most worthy of being fully dealt with. He knows also how to express concisely and clearly all that he wishes to say. For visitors who are interested in natural history he has added some chapters on "the different forms of life which they may expect to find in the course of their rambles."

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The "Barking Sands" of the Hawaiian Islands.

ABOUT a year ago NATURE printed my letter from Cairo giving a condensed account of an examination of the Mountain of the Bell (*Jebel Nagous*) on the Gulf of Suez, and of the acoustic phenomenon from which it is named. In continuation of my researches on sonorous sand, which are conducted jointly with Dr. Alexis A. Julien, of New York, I have now visited the so-called "barking sands" on the island of Kauai. These are mentioned in the works of several travellers (Bates, Frink, Bird, Nordhoff, and others), and have a world-wide fame as a natural curiosity; but the printed accounts are rather meagre in details and show their authors to have been unacquainted with similar phenomena elsewhere.

On the south coast of Kauai, in the district of Mana, sand-dunes attaining a height of over one hundred feet extend for a mile or more nearly parallel to the sea, and cover hundreds of acres with the water-worn and wind-blown fragments of shells and coral. The dunes are terminated on the west by bold cliffs (*Pali*) whose base is washed by the sea; at the east end the range terminates in a dune more symmetrical in shape than the majority, having on the land side the appearance of a broadened truncated cone. The sands on the top and on the landward slope of this dune (being about 100 yards from the sea) possess remarkable acoustic properties, likened to the bark of a dog. The dune has a maximum height of 108 feet, but the slope of sonorous sand is only 60 feet above the level field on which it is encroaching. At its steepest part, the angle being quite uniformly 31°, the sand has a notable mobility when perfectly dry, and on disturbing its equilibrium, it rolls in wavelets down the incline, emitting at the same time a deep bass note of a tremulous character. My companion thought the sound resembled the hum of a buzz saw in a planing mill. A vibration is sometimes perceived in the hands or feet of the person moving the sand. The magnitude of the sound is dependent upon the quantity of sand moved, and probably to a certain extent upon the temperature. The drier the sand the greater the amount possessing mobility, and the louder the sound. At the time of my visit the sand was dry to the depth of four or five inches; its temperature three inches beneath the surface was 87° F., that of the air being 83° in the shade (4.30 p.m.).

When a large mass of sand was moved downward I heard the sound at a distance of 105 feet from the base, a light wind

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blowing at right angles to the direction. On one occasion horses standing close to the base were disturbed by the rumbling sound. When the sand is clapped between the hands a slight hoot-like sound is heard; but a louder sound is produced by confining it in a bag, dividing the contents into two parts and bringing them together violently. This I had found to be the best way of testing sea-shore sand as to its sonorousness. The sand on the top of the dune is wind-furrowed, and generally coarser than that of the slope of 31°, but this also yielded a sound of unmistakable character when so tested. A bag full of sand will preserve its power for some time, especially if not too frequently manipulated. A creeping vine with a blue or purple blossom (*kolokolo*) thrives on these dunes, and interrupts the sounding slope. I found the main slope 120 feet long at its base; but the places not covered by this vine gave sounds at intervals 160 paces westward. At 94 paces further the sand was non-sonorous.

The native Hawaiians call this place *Nohili*, a word of no specific meaning, and attribute the sound caused by the sand to the spirits of the dead, *uhane*, who grumble at being disturbed; sand-dunes being commonly used for burial-places, especially in early times, as bleached skeletons and well-preserved skulls at several places abundantly show.

Sand of similar properties is reported to occur at *Haula*, about three miles east of Koloa, Kauai; this I did not visit, but, prompted by information communicated by the Hon. Vladimar Knudsen, of Waiawa, I crossed the channel to the little-visited island of Niihau. On the western coast of this islet, at a place called *Kaluakahua*, sonorous sand occurs on the land side of a dune about 100 feet high, and at several points for 600 to 800 feet along the coast. On the chief slope, 36 feet high, the sand has the same mobility, lies at the same angle, and gives when disturbed the same note as the sand of Kauai, but less strong, the slope being so much lower. This locality has been known to the residents of the island for many years, but has never been before announced in print. This range of dunes, driven before the high winds, is advancing southward, and has already covered the road formerly skirting the coast.

The observations made at these places are of especial interest, because they confirm views already advanced by Dr. Julien and myself with regard to the identity of the phenomena on sea-beaches and on hill-sides in arid regions (*Jebel Nagous*, *Rig-i-Rawan*, &c.). The sand of the Hawaiian Islands possesses the acoustic properties of both classes of places; it gives out the same note as that of Jebel Nagous when rolling down the slope, and it yields a peculiar hoot-like sound when struck together in a bag, like the sands of Eigg, of Manchester (Mass.), and other sea-beaches—a property that the sand of Jebel Nagous does not possess. These Hawaiian sands also show how completely independent of material is the acoustic quality, for they are wholly carbonate of lime, whereas sonorous sands of all other localities known to us (now over one hundred in number) are siliceous, being either pure silex or a mixture of the same with silicates, as feldspar.

The theory proposed by Dr. Julien and myself to explain the sonorousness has been editorially noticed in NATURE, but may properly be briefly stated in this connection. We believe the sonorousness in sands of sea-beaches and of deserts to be connected with thin pellicles or films of air, or of gases thence derived, deposited and condensed upon the surface of the sand grains during gradual evaporation after wetting by the seas, lakes, or rains. By virtue of these films the sand grains become separated by elastic cushions of condensed gases, capable of considerable vibration, and whose thickness we have approximately determined. The extent of the vibrations, and the volume and pitch of the sounds thereby produced after any quick disturbance of the sand, we also find to be largely dependent upon the forms, structures, and surfaces of the sand grains, and especially upon their purity, or freedom from fine silt or dust (Proceedings Am. Assoc. Adv. Sci., 38, 1889).

I should be lacking in courtesy if I closed this letter without expressing my great obligations to Mr. H. P. Faye, of Mana, and to Mr. Geo. S. Gay, of Niihau, for both a generous hospitality and a sympathetic assistance in carrying out my investigations. H. CARRINGTON BOLTON.

Honolulu, H.I., May 26.

Relative Growth of Boys and Girls.

A "NOTE" in NATURE of August 14 (p. 376) referring to some measurements made by Herren Geisler and Ulitzsch on school children at Freiberg (Saxon), speaks of the fact that between the ages of 11 and 16 years girls are taller than boys as if it had not been previously observed and recorded. The fact has been well known for many years, and was first observed by Dr. Bowditch, of Harvard. In a private letter to me dated March 13, 1876, Dr. Bowditch wrote:—"A comparison of the rates of growth of boys and girls shows that in this community girls about 13 years of age are taller and heavier than boys of the same age, and I wish to see how far this is the case in other countries. Quetelet's observations seem to show that it is not the case in Belgium, but some English observations quoted by him indicate that among certain classes of the population in England the same thing is found." Again, on June 10, 1876, he wrote:—"I am exceedingly obliged to you for your letter of April 27, and for the statistics which it contains. It is very interesting to get a confirmation of my observation on the difference between the two sexes about 13 years of age. I shall endeavour to verify your conjecture as to the cause of it. . . . You refer to Quetelet's measurements as being based on only ten observations for each age. Do you understand that the elaborate tables given in his 'Anthropometrie,' p. 417, rest entirely on this small number of observations?" In his paper on "The Growth of Children," published the following year (1877), Prof. Bowditch demonstrated the fact by both tables and diagrams; and in my "Manual of Anthropometry" (1878), and in the Reports of the Anthropometric Committee of the British Association (1880–83), I have given similar evidence of the difference of the sexes in this country. The English tables published by Quetelet mentioned by Dr. Bowditch refer to factory children, and were collected by Stanway, and published in a Report of the Factory Commission so long ago as 1833. Quetelet makes his curves of growth of boys and girls meet at the age of 12 years, but at all other ages the girls are shorter than the boys, but his ten observations (on selected individuals?) at each age were not sufficient to bring out the true difference. The only novelty in the German observations is that the boys do not "catch up" the girls quite so early as they do in England and America. This point, however, can only be decided by a comparison of the actual measurements of the German with those of the English and American children.

Curzon Street, Mayfair, August 16. CHARLES ROBERTS.

The Perseid Meteors.

AS I merely expressed a wish that the Perseid shower should be closely watched on the present occasion, in order to ascertain whether the apparent shifting of the radiant was not really due to other causes, I do not think I need enter into any controversy with Mr. Denning on the subject. I will therefore only say that I think his "Catalogue of Radiants," recently published by the Royal Astronomical Society (the most valuable catalogue I think which has yet appeared), seems to me susceptible (as regards the Perseids) of a different interpretation from that which he places on it in his preliminary remarks.

Dublin, August 8. W. H. S. MONCK.

IN reply to Mr. Monck I need only say that I desired no controversy on this subject, but simply to uphold one of the most conclusive facts of my meteoric observations. I arranged my radiants with the utmost care, and on the basis of a practical acquaintance with the facts; and if Mr. Monck considers my results in regard to the Perseids will bear another interpretation, I must be content to wait for the corroboration which future observers will certainly give.

It is singular that so important a feature as the shifting radiant of the Perseids (which I first announced in NATURE, vol. xvi. p. 362) has not yet been adequately investigated. Mr. D. Booth, of Leeds, has, however, effected some observations in recent years (and especially in August 1887), and his results confirm my own. W. F. DENNING.

Bristol.

The Eclipse of Thales.

MR. PAGE, the author of a work entitled "New Light from Old Eclipses," which was noticed in NATURE last April, has forwarded the following communication on the subject of the eclipse of Thales. The views which Mr. Page entertains on the subject of these ancient eclipses are not those generally accepted; but he believes a crucial test of the superiority of his system is afforded by this particular eclipse;

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